GatorMUN XIX

Background Guide

NASA's Board of Directors

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Director Letter

Hello, and welcome! My name is Sarah Cyr Halbert and I am your Director for the National Aeronautics and Space Administration's Board of Directors at GatorMUN. I am majoring in geological science with a minor in Botany here at the University of Florida. Model UN has been a large part of my life, through high school and into college. I am incredibly excited to be directing this committee at GatorMUN this year! Directing has always been one of my favorite experiences in Model UN, and I'm excited to share this passion, and a passion for space, with you all.

As a geological scientist, and as someone who researches the possibility of microscopic life in the Life on the Edge lab at UF, NASA has and has always had a special place in my heart. This committee was dually born from my love of planetary and space exploration and research and my love of Model UN. From a young age I have always dreamed of becoming an astronaut. Now knowing how difficult that is, I have set my sights on planetary and lunar research, which I equally adore. After participating in a similar NASA committee based in the 1970s, I wished to bring the experience to a modern setting. Despite the bureaucratic setting of the committee I hope that you will also bring a scientific approach to the plans you wish to put into place. Many positions, including NASA Administrator, were previously filled by astronauts or researchers, and plans will only benefit from a scientific approach. That being said, this committee encourages ideas that push the limits of what NASA can do--as an organization dedicated to innovation, your ideas on how to approach the problems of the committee should reflect that.

Knowing that NASA is a body dedicated to research and exploration, and knowing that it continues to reach these goals, the topics of the committee are varied. Delegates should work to understand their positions in relation to each topic, as well as their function in NASA as a whole. Topics of debate include the following: funding, missions, life in the universe, and international cooperation. The allocation of funds from the US government and other partners is immensely important, as NASA requires the support of the government and its partners to continue research and development. As privatization of technology continues as the committee enters the golden age of technology, they may consider partnering with private companies, or work to secure funding in other ways. Ongoing missions including the International Space Station, the Constellation Program, and the Space Shuttle program, as well as missions to Mars, and rovers and satellites, are the backbone of NASA. NASA is the premier exploratory body, along with its partners, of the universe, and the continued exploration of such through these missions ensures that research, development, and technology is put to use in space and on Earth. These missions will likely be the focus of the committee, throughout any of the topics of debate. International cooperation and diplomacy in a rapidly changing atmosphere is incredibly important, relating these topics heavily to the foundations of Model UN. As a committee on the cusp of the 21st century, the global atmosphere is rapidly changing. In order to cooperate with international partners, the committee will have to be sure to approach topics in a diplomatic, holistic sense, rather than thinking only of the United States. That being said, a balance must be struck between international cooperation and US interest, as NASA remains heavily funded by the United States.

In understanding these topics, as well as preparing for this committee, I hope you will approach this committee with curiosity and out-of-the-box ideas. While I suggest striving for practicality, there is a great deal of speculation and theorizing involved in any research, and that should be equally introduced as well! We have a unique opportunity to approach this committee with the hindsight of success, and knowing this, delegates should not be afraid to modify history--in design, in exploration, and in research. Who's to say the truth isn't out there?

Again, I am extremely excited to be working with you all and to see how you address the problems brought forth to the NASA Board of Directors. As always, good luck!

Sincerely,
Sarah Cyr Halbert
Director for the NASA Board of Directors

"It's human nature to stretch, to go, to see, to understand. Exploration is not a choice, really; it's an imperative."
- Michael Collins, Gemini and Apollo astronaut

Introduction

Hello delegates, and welcome to the National Aeronautics and Space Administration's meeting of the Board of Directors. For over 50 years, NASA has remained at the forefront of Western space exploration and human spaceflight. Working alongside their counterparts globally, NASA, as America's civil space program, has encouraged research, technology, and innovation throughout its conception and expansion, driving space related research through to the 21st century. Now, at the turn of the century, NASA has reached its relative apex: the Space Shuttle. There is not a clear path for succession beyond this, and as the new century dawns upon NASA, it is up to the Board to decide which direction NASA will follow.

As the board of directors, you are composed of businesspeople, scientists, administrators, past astronauts, and civilian counterparts. Compiling a wide range of knowledge, backgrounds, and skill levels will ensure that plans are thought through thoroughly, and applied in a way that is practical, despite the seemingly endless limitations of NASA's reach. Understanding this, this board will be tasked with several topics to discuss in this meeting at the turn of the 21st century.

The time period of this committee marks its significance. As the board of directors, you are encroaching on the 21st century, a time where technology, innovation, culture, population, and scientific achievement is on the rise. The rise and fall of the Cold War has left the US in an unsteady relationship with the former Soviet Union and China, but a changing global atmosphere has put the US on top of international politics. Even so, NASA and the Russian Space Agency have forged a compromise in space-science. It is your job to navigate these rapidly changing times, continue to thrive in innovation and space exploration, and work in tandem with the requests of the White House to achieve the goals of the committee.

Rules of Procedure

Quorum

A majority of voting members answering to the roll at each session shall constitute a quorum for that session. This means that half plus one of all voting members are physically present. Quorum will be assumed consistent unless questioned through a Point of Order. Delegates may request to be noted as "Present" or "Present and Voting."

Company any motion for a Moderated Caucus. In a Motion to Set Speaking Time, a delegate may also specify a number of questions or comments to automatically affix to the Speaking Time. These designated questions or comments may also have Speaking Time or Response Time (in the case of a question) limits, but these are not required. The Director may rule any Motion to Set Speaking Time dilatory. This motion requires a simple majority. Any delegate may make this motion between formal speakers in an effort to change the Speaking Time.

Motion to Suspend the Rules for the Purpose of a Moderated Caucus

This motion must include three specifications

a. Length of the Caucus
b. Speaking Time, and
c. Reason for the Caucus

During a moderated caucus, delegates will be called on to speak by the Committee Director. Delegates will raise their placards to be recognized. Delegates must maintain the same degree of decorum throughout a Moderated Caucus as in formal debate. This motion requires a simple majority to pass.

Motion to Suspend the Rules for the Purpose of an Unmoderated Caucus

This motion must include the length of the Caucus. During an unmoderated caucus, delegates may get up from their seats and talk amongst themselves. This motion requires a simple majority to pass. The length of an unmoderated caucus in a Crisis committee should not exceed fifteen minutes.

Motion to Suspend the Meeting

This motion is in order if there is a scheduled break in debate to be observed. (ie. Lunch!) This motion requires a simple majority vote. The Committee Director may refuse to entertain this motion at their discretion.

Motion to Adjourn the Meeting

This motion is in order at the end of the last committee session. It signifies the closing of the committee until next year's conference.

Points of Order

Points of Order will only be recognized for the following items:

a. To recognize errors in voting, tabulation, or procedure,

b. To question relevance of debate to the current Topic or

c. To question a quorum.

A Point of Order may interrupt a speaker if necessary and it is to be used sparingly.

Points of Inquiry

When there is no discussion on the floor, a delegate may direct a question to the Committee Director. Any question directed to another delegate may only be asked immediately after the delegate has finished speaking on a substantive matter. A delegate that declines to respond to a question after a formal speech forfeits any further questioning time. The question must conform to the following format:

Delegate from Country A raises placard to be recognized by the Committee Director.

Committee Director: "To what point do you rise?"

Country A: "Point of Inquiry."

Committee Director: "State your Point."

Country A: "Will the delegate from Country B (who must have just concluded a substantive speech) yield to a question?"

Committee Director: "Will the Delegate Yield?"

Country B: "I will" or "I will not" (if not, return to the next business item)

Country A asks their question (it must not be a rhetorical question.)

Country B may choose to respond or to decline.

If the Delegate from Country B does not yield to or chooses not to answer a question from Country A, then he/she yields all remaining questioning time to the Committee Director.

Points of Personal Privilege

Points of personal privilege are used to request information or clarification and conduct all other business of the body except Motions or Points specifically mentioned in the Rules of Procedure.

Please note: The Director may refuse to recognize Points of Order, Points of Inquiry or Points of Personal Privilege if the Committee Director believes the decorum and restraint inherent in the exercise has been violated, or if the point is deemed dilatory in nature.

Rights of Reply

At the Committee Director's discretion, any member nation or observer may be granted a Right of Reply to answer serious insults directed at the dignity of the delegate present. The Director has the ABSOLUTE AUTHORITY to accept or reject Rights of Reply, and the decision IS NOT SUBJECT TO APPEAL. Delegates who feel they are being treated unfairly may take their complaint to any member of the Secretariat.

Directives

Directives act as a replacement for Draft Resolutions when in Crisis committees, and are the actions that the body decides to take as a whole. Directives are not required to contain operative or preambulatory clauses. A directive should contain:

a. The name(s) of the author(s),
b. A title, and
c. A number of signatories/sponsors signatures' necessary to introduce, deter mined by the 5

Director

A simple majority vote is required to introduce a directive, and multiple directives may be introduced at once. Press releases produced on behalf of the body must also be voted on as Directives.

Friendly Amendments

Friendly Amendments are any changes to a formally introduced Directive that all Sponsors agree to in writing. The Committee Director must approve the Friendly Amendment and confirm each Sponsor's agreement both verbally and in writing.

Unfriendly Amendments

Unfriendly Amendments are any substantive changes to a formally introduced Directive that are not agreed to by all of the Sponsors of the Directive. In order to introduce an Unfriendly Amendment, the Unfriendly Amendment must the number equivalent to 1/3 of Quorum confirmed signatories. The Committee Director has the authority to discern between substantive and nonsubstantive Unfriendly amendment proposals.

Plagiarism

GatorMUN maintains a zero-tolerance policy in regards to plagiarism. Delegates found to have used the ideas of others without properly citing those individuals, organizations, or documents will have their credentials revoked for the duration of the GatorMUN conference. This is a very serious offense.

Crisis Notes

A crisis note is an action taken by an individual in a Crisis committee. Crisis notes do not need to be introduced or voted on, and should be given to the Crisis Staff by sending the notes to a designated pickup point in each room. A crisis note should both be addressed to crisis and have the delegate's position on both the inside and outside of the note.

Motion to Enter Voting Procedure

Once this motion passes, and the committee enters Voting Procedure, no occupants of the committee room may exit the Committee Room, and no individual may enter the Committee Room from the outside. A member of the Dias will secure all doors.

- No talking, passing notes, or communicating of any kind will be tolerated during voting procedures.
- Each Directive will be read to the body and voted upon in the order which they were introduced. Any Proposed Unfriendly Amendments to each Directive will be read to the body and voted upon before the main body of the Directive as a whole is put to a vote.
- Delegates who requested to be noted as "Present and Voting" are unable to abstain during voting procedure. Abstentions will not be counted in the tallying of a majority. For example, 5 yes votes, 4 no votes, and 7 abstentions means that the Directive passes.
- The Committee will adopt Directives and Unfriendly Amendments to Directives if these documents pass with a simple majority. Specialized committees should refer to their background guides or Committee Directors for information concerning specific voting procedures.

Roll Call Voting

A counted placard vote will be considered sufficient unless any delegate to the committee motions for a Roll Call Vote. If a Roll Call Vote is requested, the committee must comply. All delegates must vote: "For," "Against," "Abstain," or "Pass."

During a Roll Call vote, any delegate who answers, "Pass," reserves his/her vote until the Committee Director has exhausted the Roll. However, once the Committee Director returns to "Passing". Delegates, they must vote: "For" or "Against."

Accepting by Acclamation

This motion may be stated when the Committee Director asks for points or motions. If a Roll Call Vote is requested, the motion to Accept by Acclamation is voided. If a delegate believes a Directive will pass without opposition, he or she may move to accept the Directive by acclamation. The motion passes unless a single delegate shows opposition. An abstention is not considered opposition. Should the motion fail, the committee will move directly into a Roll Call Vote.

History: NASA's Beginning

Before the conception of the National Aeronautics and Space Administration (NASA), early interest in space innovation was headed by the National Advisory Committee for Aeronautics (NACA). Its purpose during its nearly 50 years of service was to advance aeronautics engineering and prowess of the United States. Beginning in 1946, the NACA staked its first claim in rocket planes, with the intention of launching an artificial satellite for the International Geophysical Year. Named Project Vanguard, the Bell X-1 rocket and its satellite would be outcompeted by the Soviet space program's Sputnik, the world's first artificial satellite launched into space. Alarmed by the perceived threat to national security, and the possibility of technological leadership of the Soviet Union, the United States Congress urged immediate action in response to the launching of Sputnik. On January 12, 1958, NACA established a Special Committee on Space Technology, which in turn published a National Research Program for Space Technology, which stated:

> "It is of great urgency and importance to our country both from consideration of our prestige as a nation as well as military necessity that this challenge be met by an energetic program of research and development for the conquest of space."
>
> - NACA Director Hugh Dryden, 1958

The new federal agency under NACA would serve as a space to conduct all nonmilitary space activity, while its partner, the Advanced Research Projects Agency, was designed the same year for a military purpose.

After deliberation, President Dwight D. Eisenhower forged a consensus among key ideas: upticks in scientific research, the Pentagon's rush to match Soviet engineering, a surge of corporate business, and the general public, looking up to space exploration. On July 29, 1958, Eisenhower signed the National Aeronautics and Space Act.

The National Aeronautics and Space Administration (NASA) was established the same year, on the foundations of the National Advisory Committee for Aeronautics (NACA), with a distinctly civilian orientation for the applications of space science. Serving as a locus for civil aerospace engineering, The National Aeronautics and Space Act of 1958 directed NASA's founding, and allowed it to grow from the existing three laboratories (Langley Aeronautical Laboratory, Ames Aeronautical Laboratory, and Lewis Flight Propulsion Laboratory), 8,000 employees, and two test facilities. By the following year, NASA had also gained control of the Jet Propulsion Laboratory of the California Institute for Technology.

The Fundamentals of Human Spaceflight

A significant hand in NASA's introduction to the newly named 'Space Race' was Wernher von Braun, a scientist at the Army Ballistic Missile Base. Incorporated with scientist Robert Goddard's previous work, von Braun redesigned the V-2 rocket, previously the world's first long-range guided ballistic missile developed by Germany. The same year, the Space Task Group, inheriting the US Air Force's Man in Space Soonest program, began plans for human spaceflight.

The US Air Force's plan originally outlined the use of the X-15 rocket plane, cementing the early foundations of human spaceflight. Three planes were built starting in 1955. The X-15 was designed to be drop-launched, and was from the wing of two NASA Boeing aircrafts. Twelve pilots in total were selected for the program by the combined forces of Navy, NASA, and Air Force. With a total of 199 flights from its creation to December of 1968, the X-15 collected data necessary for early flight and designs of NASA flight suits, equipment, shuttle design, and launching, landing, and reentry conditions. The program used techniques later reemployed during later missions, including recreational control jets, space suit designs, and navigational terminology and design.

By the end of 1958, NASA had refocused on the use of a ballistic capsule to hold a human occupant and renamed the project Project Mercury. Project Mercury would launch the success and career of NASA into the forefront of human spaceflight globally, championing the United States as the forerunner of spaceflight and space-science for the foreseeable future.

Project Mercury

Project Mercury began in 1958 as NASA's very first human spaceflight program. Project Mercury began the Space Race with a goal to put a person into Earth's orbit and return them to safety. The Soviet Union launched Yuri Gagarin into a single orbit on the Vostok 1, on April 12, 1961. Shortly after, however, Alan Sheppard became the first US astronaut in orbit, followed closely by John Glenn, who made three orbits of the Earth while in space.

The Freedom, Friendship, and Faith 7 launched a total of six astronauts into space. It launched from Cape Canaveral, Florida, and was designed to be piloted from the ground using the Manned Space Flight Network, which was a system of tracking and communication systems. Given the limited technology, flight calculations were done both by computer and by three human computers, Katherine Johnson, Mary Jackson, and Dorothy Vaughan, who verified the computer calculated trajectories by hand. The craft itself, along with its passenger, were retrieved from water landing. The design and success of early space missions of Project Mercury paved the way for Project Gemini, which in turn laid the groundwork for a successful extension into Project Apollo.

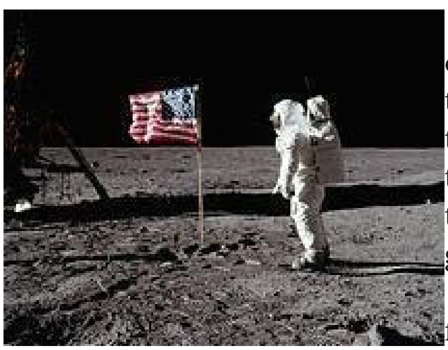
Project Gemini

Beginning in 1961, Project Gemini aimed to enhance the spaceflight techniques shown by Project Mercury in order to both overcome the Soviet Union's success in previous launches and time in space and to pave the way for the future Apollo missions. As a bridge program between Mercury and Apollo, Gemini had several major goals: to demonstrate human endurance for spaceflight by extending space time to eight days, and up to two weeks, to effectively rendezvous and dock with another vehicle while in space, to demonstrate extra-vehicular activity (space-walks), and to perfect touchdown and reentry procedures following the Mercury missions.

The Gemini capsule fit two astronauts, and launched from Cape Kennedy Air Force Station in Florida. Gemini 3 launched astronauts Gus Grissom and John Young into orbit on March 23, 1965. The launch vehicle was a modified ICBM, known as Titan-II, and the launch itself was the first to use the newly modified Mission Control Center in Houston, Texas. Nine missions of similar duration followed in its wake. Though the main focus of Gemini was to serve as a training ground for the Apollo Missions, it demonstrated an endurance mission of nearly fourteen days, successfully completing the objective set at the time of its creation. Additionally, the Gemini project allowed for medical researchers at NASA to understand the effect of extended periods of weightlessness on the human body.

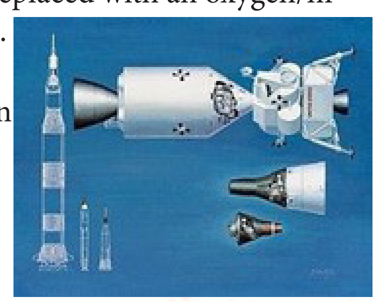
In response to Gemini, the Soviet Union developed Voskhod, a modified version of Vostok, which launched two crewed flights of four cosmonauts in total. After this, however, the program was canceled, and work began on the competition to the Apollo craft: the Soyuz.

Project Apollo: One Small Step...



After the Soviet Union succeeded first in putting a cosmonaut into space, and understanding the public perception of the event, President John F. Kennedy asked Congress to commit the federal government to land a US astronaut on the Moon by the end of the 1960s. With this external motivation from the public, and federal backing, the Apollo Program began.

The Apollo Program was the third manned spaceflight project carried out by NASA, beginning in 1961. The program was backed by the success of Mercury and Gemini, which paved the way for testing and designing a long-range capsule capable of holding multiple astronauts in the cabin. The first crewed flight occurred in 1968, but faced a major setback. Apollo 1's crew was killed by a cabin fire shortly after a pre-launch test. Following this, flammable space suits and cabin materials were replaced, and the air inside the cabin before and during launch was replaced with an oxygen/nitrogen mixture, rather than pure oxygen, to reduce the chance of fire.



Apollo flights 2-4 consisted of uncrewed missions to test the rockets for flight, as well as to test the Lunar Module (LM) and Saturn V rocket for launch. Missions 7-10 were crewed, testing the capabilities of the Saturn V rocket with a crew, successfully sending the crew of the Apollo 8 into lunar orbit. The LM was later tested for rendezvous and docking with Apollo 9 and 10.

The Saturn V rockets and LMs were projected to hold for a total of 20 missions. Three missions would also carry a Lunar Roving Vehicle, to make lunar travel easier. The craft sent to the moon comprised a total of two portions: the command and service module and the lunar module. A total of ten lunar modules were launched into space, with six containing human passengers. Six of the descent stages remain at their landing locations, with three of the other LMs burning up in orbit, and the final, tenth module recovered after the Apollo 13 incident.

Apollo 11 marked the first landing on the lunar surface's Sea of Tranquility on July 11, 1969. Composed of an all-Gemini veteran crew of Neil Armstrong, Michael Collins, and Buzz Aldrin, the crew spent a total of 21 hours, 36 minutes on the surface, and 2 hours 31 minutes outside the spacecraft. While on the lunar surface, the team took photos, collected samples, and deployed automatic scientific equipment. Images were captured via black-and-white television and sent back to Earth.

Apollo 12 landed several months later, in the Ocean of Storms, within walking distance of the Surveyor 3 probe that had landed a year prior. The crew was composed of Richard F. Gordon Jr., Charles Conrad and Alan Bean.

Apollo 13 was the third marked mission for the moon. Apollo 13 launched Gemini veteran Jim Lovell, and rookie astronauts Jack Swigert, and Fred Haise into orbit in April 1970, headed for the Fra Mauro formation of the lunar surface. However, two days out, a liquid oxygen tank used for fuel exploded, causing damage and power loss to the command module. The crew was forced to use the LM as a lifeboat. The crew successfully made it back to Earth, but the Apollo Program was delayed for the remainder of 1970.

The landing of an astronaut on the lunar surface marked the end of the Space Race between the Soviet Union and the United States. Nevertheless, missions 14-17 were conducted without hassle, extending the time on the lunar surface to twenty-three hours by the end of 1972, in the Taurus-Littrow formation.

Skylab, the First Space Station

After the success of the Apollo missions, NASA moved forward with its next big plan: an independently constructed space station known as Skylab. It was NASA's first and only independently constructed space station, built on Earth and sent into orbit on May 14, 1973, on two Saturn V rockets. Portions of Skylab were damaged during launch by a loss of its thermal protectors. However, the first crew aboard Skylab (known as Skylab 2) repaired the damage, allowing Skylab 3 and 4 to successfully study aboard the craft. Skylab was occupied for a total of 171 days throughout 1973 and 1974. Skylab included a laboratory for studying the effects of microgravity, and a solar observatory, as well as both a wet and dry lab. Three three-man crews stayed aboard the station for periods of 28, 59, and 84 days respectively, in an area 30 times as big as the Apollo lunar module. Conditions were reported as being satisfactory for living, including planned meals, exercise, and recreational activities.

In 1979, NASA planned to have a Space Shuttle dock with Skylab, in order to elevate the space station to a higher, safer altitude and to prevent re-entry. However, the Space Shuttle was not completed in time, and Skylab re-entered Earth's atmosphere shortly after.

Apollo-Soyuz

May 24, 1972 marked the first joint crewed space mission between US and Soviet forces. President Richard M. Nixon and Premier Alexei Kosygin signed an agreement declaring intent for all future international spacecraft to be able to dock with each other. This prompted the Apollo-Soyuz Test Project, which aimed at developing the rendezvous and docking of an Apollo command and service module with a Soyuz spacecraft. The mission took place successfully in July of 1975, and was the last US human spaceflight until 1981.

As of Late

Now, NASA, serving as the forefront of space exploration for the US, and for most of the globe, has focused its sights beyond the Moon and into long term spaceflight. With advancements in single use and multi-use rockets, reusable capsules, and the success of Skylab, NASA can turn its sights to more long-term projects. Such projects may include more unmanned exploration of the Moon, of Mars, and of the Solar System, as well as gravitational studies for the biological and physical as NASA works to push the boundary on human spaceflight and humans in space. Additionally, NASA is currently underway with the Space Shuttle program, and testing in orbit is ongoing.

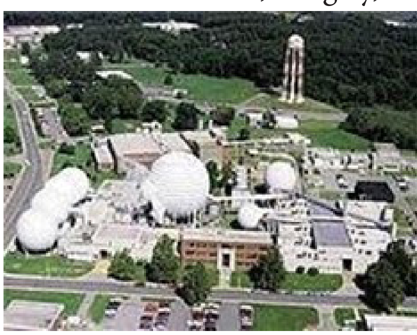
NASA as a Government Body

NASA is a non-partisan body, serving globally to achieve scientific endeavors and bolster the scientific community at large. However, presiding in the US, and created on the foundations of government agencies (including the National Advisory Committee for Aeronautics) as well as the Army, NASA receives a significant amount of funding, and its facilities, from the US.

Facilities

NASA facilities exist across the United States and around the world. There are a total of 10 NASA field centers, and all present facilities, save from NASA Headquarters located in Washington DC, fall under the jurisdiction of one of these ten centers.

Several centers were inherited from the National Advisory Committee for Aeronautics when NASA was first founded. Four of the existing ten field centers were brought in this way. These include Ames, Langley, Glenn, and Armstrong Centers.

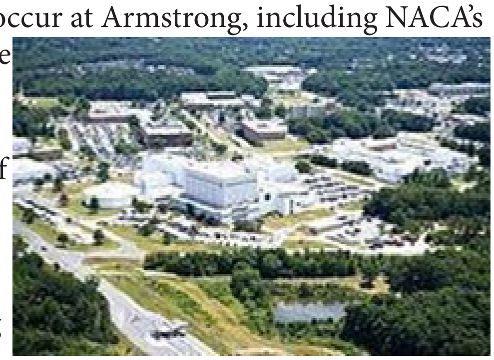


Langley Research Center (LaRC) is NASA's longest standing facility. First built in 1917, Langley mainly focuses on aeronautical research, though several high-profile flight missions were planned on site, including the Apollo lunar lander. Langley also housed the Space Task Group, which became the Manned Spacecraft Center as it moved to Houston. Today, Langley uses over 40 wind tunnels to study improved aircraft and spacecraft design.

Ames Research Center (ARC) was founded in 1939, also to conduct wind tunnel research at its conception. It has expanded its role into research and technology for spacecraft, aircraft, spaceflight, and general information technology. Ames provides leadership in sectors such as small satellites, robotic lunar exploration, intelligence/adaptive systems, thermal protection, and astrobiology.

The John H. Glenn Research Center (GRC), formerly known as the Lewis Flight Propulsion Laboratory, was established in 1942 to study aircraft engines. Glenn supports a majority of spaceflight missions and a wide range of research elements. Though technology remains at the forefront, Glenn's core competencies also lie in in-space propulsion and cryogenics, as well as communications, energy storage and conservation, and microgravity studies.

Armstrong Flight Research Center (AFRC) was established in 1946. It is currently NASA's premier site for aeronautical research as well as research into advanced aircraft. Research into aircraft design, fueling, speed, and general remote flight tests occur at Armstrong, including NACA's Douglas Skyrocket, which was the first craft to fly over twice the speed of sound, hitting Mach 2.005. High speed flight and preventative design remain staples of Armstrong.



Along with facilities brought in by the conception of NASA from NACA, two facilities, the Jet Propulsion Laboratory (JPL) and George C. Marshall Space Flight Center (MSFC) were transferred to NASA from the Army. JPL primarily serves as a center for the construction and testing of robotic planetary spacecraft, but also serves Earth-orbit and astronomy missions. It was responsible for the creation of Explorer 1, America's first robotic satellite along with the Army Ballistic Missile Agency. Marshall Space Flight Center is one of NASA's largest centers. The Saturn V rocket and Skylab were both designed and assembled here. That being said, Marshall is responsible for design and assembly, payload and related crew training, and until 1959, contained the Launch Operations Directorate.

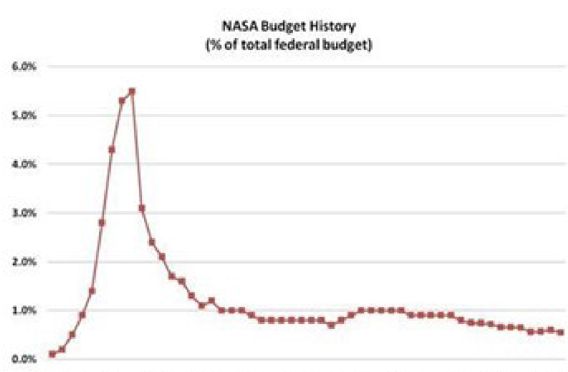
Four facilities were built by NASA following its creation: Goddard, Stennis, Johnson, and Kennedy. Goddard Space Flight Center was commissioned in 1959. Goddard is considered to be the largest combined organization of NASA, including scientists and engineers from across the globe dedicated to increasing knowledge of the Earth, Solar System, and Universe via observations from space. As a major US laboratory, Goddard specifically focuses on developing and operating unmanned spacecraft, developing

space systems and related technology, and maintains data acquisition networks for spaceflight tracking. John C. Stennis Space Center, originally known as the Mississippi Test Facility, was commissioned in 1961. It currently serves as NASA's largest rocket engine test facility. Over 30 local, state, national, international, private, and public companies and agencies use the facility for similar rocket testing. Lyndon B. Johnson Space Center is NASA's premier center for human spaceflight training, research, and flight control. Originally named the Manned Spacecraft Center at its 1961 conception, the center outgrew the Space Task Group and reformed to create Mission Control, known officially as Christopher C. Kraft Jr Mission Control Center. It is home to the United States Astronaut Corps, responsible for training astronauts from the US and, its partners, for flight. Lastly, the John F. Kennedy Space Center, perhaps the most well-known of all NASA research facilities, was conceived in 1962. Originally named the Launch Operations Center, it has been the sight for every United States human spaceflight mission since 1963. Kennedy continues to manage and operate unmanned rocket launch facilities for the US and operated the Vehicle Assembly Building (VAB). At any given time, three launch pads at Cape Canaveral are in use for a variety of civilian and private testing.

Other facilities, such as Canberra Deep Space Communications Complex, located in Australia, the Space Telescope Science Institute at John Hopkins, White Sands Test Facility, and a variety of Deep Space Telescope complexes exist to serve NASA across the globe. Without these facilities, the goals and achievements of NASA would not be possible. Additionally, funding, including governmental, keeps NASA's research alive.

Funding

As a federal agency, NASA receives its funding from the annual federal budget passed by the United States Congress. The US budget is divided into three major categories of spending, including Non-Discretionary Non-Defense (known as mandatory) covering social programs such as social security, food stamps, and Medicare/Medicaid and divide about 50% of the spending budget, Discretionary Defense, which includes the Department of Defense and the Military and divide 15%



of the budget, and Non-Defense Discretionary spending, another 15%, which includes all other executive departments that are non-military, but may include military based House committees. 7% of the budget covers interest.

Because Non-Defense Discretionary funding covers a wide range of House committees and governmental bodies, the 15% is not divided evenly. Of the 15%, or nearly $600 billion dollars, NASA receives $22.6 billion dollars. This equates to about 0.48% of the $4.7 trillion financial year projected budget of the US annually. Budgetary constraints for NASA have only increased over the last decade, and have faced political backlash, questioning the return-on-investment feasibility of NASA, as well as claims that NASA may be 'sinking money' into programs such as the Space Shuttle and unmanned testing, rather than developing deep-space, long-term mission plans.

Partnerships

NASA uses "partnership" to describe a wide variety of relationships with various entities, be those contractors, academia, the public, other stakeholders. NASA utilizes these partnerships to achieve several goals, mainly striving to facilitate collaborative opportunities and support innovation. NASA also utilizes these partnerships to maintain facilities, resolve gaps in capabilities, and provide more areas of outreach and expertise in doing so. Partnerships serve as a tool for meeting NASA's Space Act requirement of encouraging the "fullest commercial use of space", while also serving as a basepoint for operations and outreach opportunities.

Partnerships differ from contracts in three ways: partnerships normally support the needs of the partner where NASA reimburses government expenses or the partnership achieves a mutual goal when working collaboratively, and no funding is exchanged. Contracts, on the other hand, are required when the purpose of the transaction is to acquire property or services for the direct use by the US Government.

NASA often partners with the following: small and large industry, research institutions, other internal organizations, public outreach organizations (such as museums), state and local governments, colleges and universities, professional associations, non-profit organizations, and international organizations, governments, institutions, and academia. In addition to partnerships, NASA also issues contracts to companies to build and design for future missions. Notable past partnerships have included Northrop-Grumman, Boeing, General Electric, Rockwell, Lockheed Martin, Draper Laboratory, and the Universities Space Research Alliance. Understanding the wide scope of partnerships and contracts available for NASA will be vital in compounding, delegating, and outsourcing work for the next coming years.

Leadership and Structure

The leadership and structure of NASA follows a multi-pronged approach, with each varying level responsible for overseeing, managing, and reporting on a specific sector of work.

The Agency's leader, NASA's Administrator, is nominated by the President of the United States, and is subject to approval by the US Senate. The nomination of an Administrator to NASA usually follows the cycle of elections, with some notable exceptions. The

Administrator reports to the President as their senior space advisor, along with delegating tasks to the main body of NASA. As Administrator, the position requires displaying the Agency's vision, setting its program and budget priorities, directing internal policies, and assessing performance overall.

The first Administrator of NASA was Dr. T. Keith Glennan, appointed by President Dwight D. Eisenhower in 1958, who worked to bring together the disparate projects of the Agency in its infancy. Glennan was surpassed by Hugh L. Dryden, who, after a short term due to his passing, was surpassed by James E. Webb. Appointed 1961, Webb directed a major management restructuring project, establishing the Houston Manned Spacecraft Center, Johnson Space Center, and the Florida Launch Operations Center, Kennedy Space Center. Currently, nine Administrators have served. Daniel S. Goldin currently serves as Administrator, appointed April 1st, 1992. John R. Dailey serves as the Deputy Administrator, and will serve as the acting Administrator during the future appointment process.

The main body of the Agency comprises an Administrator at its head, with a Deputy Administrator as its second and an Associate Administrator as it's third. The Administrative branch of NASA also comprises the financial office, the office of the Chief of Staff, acts as the collection point for the NASA advisory groups and the Inspector General, and serves to delegate further tasks through other agency heads. Along with this, the Administrator and their Deputy Administrator are the head office for the General Counsel, Communications, and International and Interagency Relations. The Associate Administrator acts as the higher office for the Mission Directorates, as well as the reporting office for many of the research centers located within the Agency. All other agency factions report to the Deputy Associate Administrator under the Associate Administrator.

The Agency's administration is located at NASA Headquarters in Washington, DC. This location provides overall guidance and direction to the main body. NASA civil service employees are required to be citizens of the United States, including the Administrator and their directors.

NASA Advisory Council

In response to the Apollo 1 accident, which killed three astronauts during a launch rehearsal in 1967, Congress prompted NASA to form the Aerospace Safety Advisory Panel. This panel would advise the NASA Administrator on possible safety issues and hazards regarding NASA's aerospace programs. By 1977, the Advisory Panel became the NASA Advisory Council, combined with the Space Program Advisory Council and the Research and Technology Advisory Council. After the Challenger disaster of 1986, the council was required to submit an annual report to Congress and to the NASA Administrator.

To the Sky Once More: Modern Human Spaceflight

> "We want to explore. We're curious people. Look back over history, people have put their lives at stake to go out and explore ... We believe in what we're doing. Now it's time to go."
>
> - Elieen Collins, STS-114 Commander

Considering funding, research capabilities, manpower, design, and a variety of private and NASA driven agendas, NASA has long since derived a 'space policy' for their mission directives and research goals. Typically, the major directives originate from scientific interest and advice converging with political interest, finding, and public interest, as well as global events and technological developments. Such was the drive behind NASA's conception.

Considering the goals in place currently, which include to extend and sustain human activities in space, expand scientific understanding of space, create new space technology, advance aeronautics research, and to share with the public the goals and achievements of NASA, NASA has been working since the success of the Apollo program to match that peak.

Space Shuttle/STS

The Space Shuttle program, originally called the Space Transport System, became the focus of NASA beginning in the 1970s. Riding off the success of the Apollo program, construction on a frequently launchable, fully reusable space flight vehicle went underway. With an expendable external propellant tank to reduce cost, four Space Shuttle orbiters were built by 1985. The first to launch was STS-1, or Space Shuttle Columbia, on April 12th, 1981. The major components of the Space Shuttle are the spaceplane orbiter with an external fuel tank and two, solid-fuel launch rockets. The external tank is currently the only component not being reused. The orbiter itself fits from 2 to 8 astronauts.

Recently, over twenty manned missions, the Space Shuttle carried components and crew for Spacelab, which remained in the Shuttle's cargo bay for use. This comprised a total of 22 ongoing, servicing, STS missions. The Hubble Space Telescope, which was set to launch in 1983, will soon launch on STS-31. More STS missions are projected to launch in the future, considering the versatility and design of the Space Shuttle, as well as its reusability.

Despite its versatility, the STS has been involved in one major accident to date: the Challenger disaster in 1986. The Challenger fatally broke into pieces and disintegrated above the Atlantic Ocean 73 minutes into flight. The disintegration of the Challenger occurred due to a joint in its right solid rocket booster failing at liftoff, which was in turn due to the unnaturally cold environment before takeoff. All seven astronauts aboard were killed.

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A second orbiter, built from replacement parts, known as Endeavor, has replaced the destroyed shuttle. However, with the ideas of a replacement space station for Skylab underway, it may be wise to reconsider the use, structure, and design of the orbiter as its use grows in frequency.

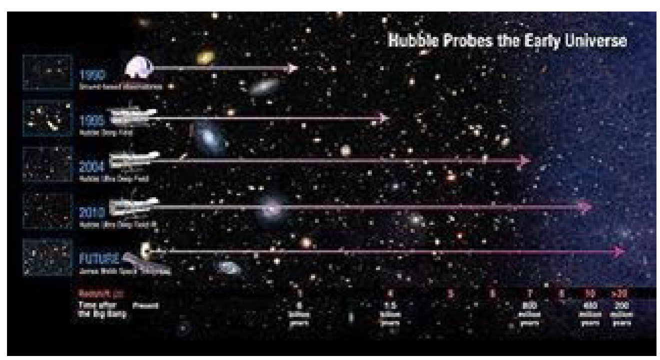
Rovers/Unmanned Craft

NASA has conducted a wide range of uncrewed and robotic spaceflight programs into the far reaches of space. Uncrewed robotic programs launched the first US satellite into orbit, and marked a number of missions to Venus, Mars, and the outer planets. More than 1,000 uncrewed missions have been launched to date.

The first US uncrewed satellite was Explorer 1, a joint project between the Jet Propulsion Laboratory and the Army Ballistic Missile Agency. The Explorer was designed to study the Earth and Sun, measuring magnetic fields and solar wind. Resting at the L2, or Lagrange, point, Explorer was launched shortly after Sputnik, and continues to function to this day. The location of the L2 point between the Sun and the Earth allows the gravitational pull between the two to form an orbit between the two bodies.

The inner solar system is also a point of study. Four uncrewed programs have been launched to study the inner solar system, beginning with Mariner in the 1960s through 1970s. The Mariner program launched several probes to Venus, Mars, and Mercury. Mariner 2

successfully marked the first flyby, Mariner 4 took the first pictures from another planet, Mariner 9 was the first planetary orbiter, and first to make a gravity assist maneuver to achieve velocity was conducted by Mariner 10. The first successful landing on Mars was made by Viking 1 in 1976. A rover is currently in the works to launch again to Mars, known as Mars Pathfinder, but has not yet been launched.



The outer solar system, beginning with Jupiter, was first explored in 1973 by Pioneer 10. Pioneer 11 was the first to visit Saturn in 1979, and Voyager 2 was the first, and so far, only, to visit Uranus and Neptune in 1986 and 1989 respectively. Pioneer 10 was also the first spacecraft to leave the Solar System, in 1983. Voyager 1 and Voyager 2 both passed the Pioneer 10 in terms of distance to the outer solar system, but both Pioneer 10 and 11 carry messages for possible extraterrestrial life. Currently, it takes a total of three hours to receive a radio signal from Pioneer 10 and 1l and Voyager 1 and 2, due to distance.

The Hubble Telescope, set to launch by the end of 1990, will occupy a space in low-Earth orbit, and will be used for long-distance imaging of deep-space, which is not currently available on Earth. Offering clearer images to our outer solar system, and further beyond our system, will allow us to study and observe what we cannot see from Earth.

Research

NASA, as a body, is continuously dedicated to research and advancements in technology, aeronautics, aircraft, and an understanding of our Earth, Solar System, and Universe. NASA's Aeronautics Research Mission Directorate delegates the majority of research directives undertaken by NASA. The Agency has made use of technologies such as the multi-mission radioisotope thermoelectric generator, or MMRTG, to power spacecraft, using such in future missions could reignite spaceflight in the turn of the century, as current missions have been delayed due to a shortage of plutonium-238.

The Earth science research program was established and first funded in the 1980s under president Ronald Regan, and has persisted throughout. This allows NASA to continue to study the Earth and its various changes. Because of this, NASA also researches and publishes actively on the subject of climate change. Earth science was built into NASA's mission at its creation in 1958, meaning that research of the Earth, in all forms, is fundamental to NASA's mission statement.

Goals and Directives

One of NASA's largest directives was the launching of spacecraft to and the successful landing on the Moon through the Apollo mission, and the leading up to this mission. Further goals have included the designing and constructing of the STS Space Shuttle and a renewed effort to create a self-sufficient and crewed space station. Typically, NASA goals and directives stem from the intersection of public, private, governmental, and scientific interest, federal funding concerns, and technological capability, which are also swayed by varying effort, ability, funding changes, and world events. For example, a major push toward the space station Freedom by President Reagan and public interest was cut short by the end of the Cold War, as new public interest toward a partnered space station has increased.

As previously stated, NASA's goals are:

-to extend and sustain human activity across the solar system
-to expand scientific understanding of the Earth and the universe
-to create and innovate new space technologies
-to advance overall aeronautics research
-to enable program and international capabilities between NASA's and its partners
-to share NASA with the public, educators, and students to provide opportunities
-to participate in global science

As of late, research directives have shifted toward the use and design of the Space Shuttle and further advancements beyond that. NASA's Space Exploration Initiative, first starting in the 1980s, opened new avenues to explore and discover the observable universe. As technology advances, it becomes easier to continue to study the observable universe and extend beyond that. Additionally, over the past few decades, NASA's focus has shifted gradually to an increase in human spaceflight and the eventual exploration of Mars.

On the International Scale

As previously mentioned, NASA is an apolitical body. However, being a US government sanctioned program, NASA relies on US public and international relations to establish its connections with other global powers.

Since its conception in 1958, the National Aeronautics and Space Act directs NASA to pursue cooperation "with other nations and groups of nations." Principles of international cooperation have remained at the forefront of NASA research and development. Such collaborations remain crucial to the success of NASA's approach to inherently global and interrelated scientific challenges. NASA has, since its establishment, conducted over 3,000 agreements with over 120 nations and international organizations, on the basis of science, human exploration and operations, aeronautics research, education and outreach, and multilateral representation and cooperation. This cooperation allows NASA to, with its partners, accelerate the pace of scientific progress through open access data, share risk and assessment before flight, and offset and manage costs while promoting advancement for nations involved.

NASA has several long-term international partners, despite the active global climate. The former Soviet Union, Japan, the European Space Agency, and Canada make up a majority of NASA's international partners. As part of an ongoing reflection into partnerships, future directives, and a global resurgence in Earth science data for daily benefit, NASA has expanded its global reach to include new partners in Africa, Asia, and the Americas. Local decision-making benefits from these partnerships, in areas such as agricultural productivity, water management, disaster prediction and response, and even vector-borne diseases.

NASA is an active member of several international space, science, aeronautics, education, technology, and exploration communities. Through its participation in these groups, NASA's reach extends further than its specific missions and directives. The Agency's involvement in these groups helps it advance important programs and policies, including sharing future plans, strategies, and research priorities, exchanging information, promoting education and outreach initiatives and coordinating key Earth-science observations, as well as collaborating on all of these.

As previously discussed, several missions over the past 20 years have been internationally based. One of these missions includes the Hubble Telescope. Co-built as an operation between the European Space Agency and NASA, the Hubble Telescope was given a Faint Object Camera (FOC), by the ESA, which allows for high-resolution imagery in the ultraviolet, visual,

and near-infrared portions of the electromagnetic spectrum. This allows for high-resolution imagery of the universe that we cannot see from Earth, in a variety of ways.

NASA, in later missions, hopes to co-built the International Space Station. A cross between an improved Skylab, redeveloped plans from the Freedom Space Station, and serving as an international research station in space, the ISS will feature NASA's top collaborators, the Canadian Space Agency (CSA), the European Space Agency (ESA), the Japan Aero space Exploration Agency (JAXA), and the Russian Federal Space Agency (Roscosmos). An internationally lead front will require cooperation between all nations on design, training, and staffing the station.

In addition to the ISS, plans for research into astrobiology and analogs, geodesy, global mapping and exploration, early warning systems, and international astronaut training are global efforts that NASA wishes to undertake. As the world is a rapidly changing front, it remains critical that NASA remain on good footing with their allies.

Topics of Debate

Considering the wide range of applications of NASA, its bodies, its subsidiaries, and its foundations, NASA currently handles a wide range of topics and issues as a whole. The Board of Directors is composed of members of the executive board, including personnel of the Office of the Administrator, advisory groups, mission directors, program directors, mission support directors, civil service personnel, civil advisors, and privately contracted companies. With a wide range of personnel and skill sets, understanding and overcoming the challenges of delegating, designing, manning, and preparing for new missions and programs should serve no issue.

Topics of debate for the Board of Directors, as previously stated, range in breadth and application. Finance is one of the most pressing. Considering that only a small portion of the US budget comprises all of NASA's funding, NASA must either work with the current constraints of $22.6 billion dollars or seek private investment. The Board must consider that, at its peak with Apollo, NASA received almost 4% of the US budget. Currently, NASA's spending is divided by category, with exploration at $4.79 billion, planetary science at $2.23 billion, earth science at $1.92 billion, and aeronautics at $0.685 billion.

Ongoing research is another topic of interest as programs continue to expand. Currently, projects ongoing include, but are not limited to, the Space Shuttle and Space Transport System, currently in use, building and maintaining the Spacelab, and future missions, such as the launch of the Hubble Telescope, which remains to be scheduled. Other projects could include expanding Spacelab, working directly with the Russian Space Agency to design those components (which has been proposed recently), past plans for the Space Station Freedom, which have recently become a topic of interest, and further rovers to Mars and beyond. Considering that research is ongoing into many of these projects, the Board is open and free to decide, within its jurisdiction, what to focus on, and the success or failure of such could spell the next steps for NASA as a whole. In addition to spaceflight and testing, the ongoing search for extraterrestrial life, known as SETI, continues to grow in popularity, since the inclusion of messages with Pioneer 10 and 11. The Board may choose to focus on extraterrestrial communication as an add-on to their current directives.

Lastly, international cooperation and diplomacy remain at the forefront of NASA objectives. Considering that NASA works with a variety of international partners, including Europe, Canada, and Russia, to achieve its scientific prowess, it is important that these diplomatic ties remain strong. As it stands, the US does not currently rest on bad footing with any of the nation's NASA works in tandem with. Russian cooperation has not been as directly on the table, but as the Board of Directors, it is an option at hand, and has been discussed in tandem with the resurfacing plans of the Freedom. Additionally, the European Space Agency has worked closely with NASA over the construction and launch of Spacelab. That being said, future missions, who they are built with, and who they are manned, trained, and led by are at the whims of the Board.

Understanding this, the Board of Directors carries a major responsibility for the success of NASA as a governmental body, but also as a foundation for scientific excellence and achievement. The Board must work as a unit, understanding strengths and weaknesses, to overcome the challenges set out for it, and in doing so, can ultimately excel in further research, exploration, and continuing to lay the groundwork for future missions. Though reality somewhat limits the conceptions of NASA, NASA, as a premier body for research, and with enough time and dedication, can complete the tasks at hand, no matter the complexity. Keeping this in mind, the Board is encouraged to approach the problems set forth with real-world backing, but an out of the box approach. Created in imagination and grounded in science, NASA can continue to push forward into the stars, and into this new century, for the benefit of all.

Positions

Delegates should research the position as it functions within NASA, and then, if desired, the specificities of the position. Resources should be available for each representative position, but if there are any concerns, do not hesitate to reach out to our secretariat.

Chief Technologist

The Chief Technologist serves as the head of the agency-wide technology policy. Largely a logistical role, the Chief Technologist directs the work of the integration and innovation teams, coordinating and tracking technology investments across the agency, working to infuse technologies into future NASA missions. The Chief Technologist does not oversee technological advancements but works directly with extra-governmental agencies to understand research capabilities, notably business partners such as Lockheed Martin, GE, and Northrop Grumman.

Chief Information Officer

At a time where the internet is becoming more and more popular, the Chief Information Officer works directly to ensure data security, privacy, and to better apply information technology and its new understandings to NASA. Though IT is a small fraction of NASA's overall agency, the CIO also collaborates in tandem with other offices to deliver exceptional standards of computing and related technology. The CIO is less concerned with running the IT department, though is a focus, and has shifted to service analysis, data security, and market reach.

Chief Financial Officer

NASA, reaching the turn of the century, is incredibly concerned with long term financial strategies following the success of the Apollo Missions. The Chief Financial Officer provides leadership for the strategic planning, budget analysis, justification, control, and reporting of all fiscal resources within the Agency. Understanding this, the CFO must also work to provide a layout for business associations, private partnerships, the US government, and work within the board to establish stable connections on these fronts.

Chief Scientist

Though the Chief Scientist leads scientific endeavors, the position of Chief Scientist is heavily legislative. Working as the head of strategic planning and investment for scientific endeavors, the Chief Scientist represents the agency's strategic science objectives and accomplishments. Specifically, the Chief Scientist advocates for NASA and works closely with the White House Office of Science and Technology Policy and the Office of Management and Budget. As NASA enters a new era of space exploration, the Chief Scientist, along with their counterparts, will be crucial in maintaining a relationship with the governmentally focused scientific community, and the House committees that govern NASA's policy and funding.

Chief Education Officer (STEM Engagement/PR)

The Chief Education Officer is responsible for the public outlook of NASA from a STEM Engagement perspective. Rather than focusing on public appeal, the Chief Education Officer focuses specifically on the scientific endeavors of NASA and encouraging up and coming scientists through research, internship, and scholarship opportunities. Additionally, the Chief Education Officer advocates for education and development of scientific centers (such as those located at Kennedy Space Center and Johnson Space Center), as well as working to increase K-12 involvement, enhance higher education, and support underrepresented communities.

Director Legislative and Intergovernmental Affairs

The Director of Legislative and Intergovernmental Affairs direction and coordination of all communications and relationships between NASA and the United States Congress as well as state and local governments. In doing so, NASA can receive information about legislation as well as provide professional counsel for advocacy and support of NASA generally, rather than in specific House committees. As the legislative head of NASA, the Director of Legislative and Intergovernmental Affairs also serves as the senior advisor for legislative matters on the Board.

Director of International and Interagency Relations

The Director of International and Interagency Relations directly serves as the general liaison between NASA and its consulates, as well as NASA and other international space agencies. The Director is responsible for international relations, management and oversight of international cooperation agreements and missions, foreign travel and trade, and overseeing NASA personnel in foreign countries. In doing so, the Director of International and Interagency Relations ensures that diplomatic ties to other nations remain stable.

General Council (Legal)

As the head of the legal division of NASA, the General Council serves as the leadership in areas of legal services. This includes patents, policy, and contracting. Working with other bodies, the General Council allows NASA to remain legally sound, while also providing internal support for agreements and contracts between government, nongovernment, and international agencies. The General Counsel is also responsible for developing ethics and patent program requirements, establishing metrics, and developing quality standards along with similar bodies on the Board.

Liaison to the White House

The Liaison to the White House directly functions as the tie between the Office of the President and the NASA Board of Directors. In doing so, both stations can be briefed during mission time, and otherwise receive information from the Office of the President regarding governmental happenings. The Liaison to the White House also allows the Board to directly speak to the Office of the President regarding mission updates, funding, scientific endeavors, research, and matters of security.

Liaison to the Department of Defense

Despite being a scientifically, rather than military, driven organization, the Liaison to the Department of Defense allows NASA to directly communicate with the DOD on matters of national security, as well as provide information for up-and-coming technology and advancements related to national defense. Corporations, as well as NASA, work with the DOD to provide new technology for military endeavors, and the Liaison is in place to ensure this transaction functions well and that contracts are established between the DOD and NASA.

Director of Aeronautics Research

The Director of Aeronautics Research directly works with research labs to research, develop, maintain, and establish new technologies, systems, and programs for flight, not just in space, but also on Earth. NASA developed technology that increased the standard for innovation and safety among emerging aircraft at the turn of the century, and Aeronautics Research aims to continue this path. The Director of Aeronautics Research is also in contact with research facilities at Armstrong, Glenn, Langley, and Ames facilities.

Director of Human Exploration

The Director of Human Exploration oversees the functions of NASA in relation to manned spaceflight, specifically human exploration in and beyond low-Earth orbit. In doing so, Human Exploration also oversees the functions of the International Space Station. As one of the main goals of NASA at the turn of the century is to establish a permanent or semi-permanent residence of humans in space, Human Exploration is at its forefront. The Director of Human Exploration also oversees low-level requirements in development, policy, and programmatic oversight related to their position and operates out of Johnson, Kennedy, Stennis, and Marshall Space Centers.

Director Space Operations & Flight

Like other bodies, the Director of Space Operations works to oversee human exploration in and beyond low-Earth orbit. However, where they differ is their position in leadership and management of NASA space operations related to Launch Services, Space Transportation, and Space Communications, specifically working with Mission Control to provide launch details, mission plans, and act as the communication between Mission Control and the Board. Like their counterparts, the Director of Space Operations operates out of Johnson, Kennedy, and Marshall Space Centers.

Head of Space Science

The Head of Space Science Research directly spearheads all research related to space science, in a range of interdisciplinary positions. These positions include galactic evolution, planetary systems, and the origin and evolution of life in the universe, among others. Astrophysics, exobiology, and planetary systems are all frames in which Space Science operates, focusing on life detection technology, (exo)planetary formation, and astrophysics laboratory research. In doing so, the Head of Space Science serves as the forefront for study of life in the universe beyond the planet Earth and the exoplanets beyond there. Their base of operations is the Ames Research Laboratory, among other, smaller research facilities.

Head of Earth Science (Goddard)

The Earth Science Division is responsible for studying the complexities of the planet Earth in hopes of applying these same understandings to planets in the Solar System and beyond. In doing so, as well, the Head of Earth Science is overseeing planetary research of the Earth, allowing for inferences and policies to be made regarding the ever-changing nature of the Earth, from the change in climate, to research for emergency and contingency plans. Landsat, alongside the US Geological Survey, was the first mission to begin mapping the Earth's surface and below, and as new technology emerges, Earth research must develop with it. Earth Science research often operates out of Goddard Flight Center.

Head of Biological and Physical Research

Biological and Physical Research works directly with other agencies to use the spaceflight environment to conduct experiments that cannot be conducted on Earth. Testing micro- and zero-gravity conditions and their effects on the biological and physical remains crucial to understanding how long-term space flight affects passengers and involved equipment. Though the Biological and Physical Research Division may utilize the International Space Station, it also utilizes drop-towers, free-flying satellites, and aircraft to achieve its research proposals. By developing equipment and understanding how gravity and space itself impacts organisms, the Head of Biological and Physical Research can direct the Board on operations involving such.

Head of Space Technology

The Head of Space Technology is generally responsible for the development of new technologies related to spaceflight, exploration, research, and long-term plans in space. Because of such a wide stretch of research, the Head of Space Technology focuses more specifically on technology in space, including satellites, rovers, and instruments involved in both. However, the Head of Space Technology also works closely with other organizations and institutions to develop these technologies, such as Universities and Civil Scientists.

Chief of Health and Medical Services

The Chief of Health and Medical Services functions as the oversight of all medically related research and activities regarding medicine in space. These include advising animal and human transport to space, and in ground-based analogs for astronaut training, medical services aboard spacecraft, medical training, and oversight of the training program from a medical perspective. The Chief of Health and Medical Services must provide a groundwork for safety and security for personnel both in space and on the ground.

Director of Safety and Mission Assurance

The Director of Safety and Mission Assurance ensures that missions, their plans, their equipment, training, and all other related activities meet health and safety standards. The aims of the Director are to provide a groundwork for risk mitigation and assessment, and to ensure that personnel are trained and equipped appropriately in the environment in which they work. To reduce risk related to personal injury and to ensure that missions run smoothly regarding all procedures, from research to liftoff, the Director of Safety and Mission Assurance works to provide guidelines and codes, examinations and inspections, and general overviews of the bodies related to manned missions.

Director of Strategic Communications (Public Affairs)

The Director of Strategic Communications serves as the liaison between NASA and the Press. As the public affairs office, the office works to release press statements, update the public on research and missions, works with other agencies to provide good social influence, and generally uphold the image of NASA from a public, rather than educational, standpoint. The Director of Strategic Communications also ensures that information is disseminated to the public at request of the Board, and generally serves as the office of public relations, as well.

Director of Institutions and Management (HR)

As the Office of Human Resources, the Director of Institutions and Management serves generally as the liaison between employees and their head offices, as well as the Board itself. To ensure that working conditions are favorable, hiring is smooth, and that transitions between agencies and areas are done well, the Director of Institutions and Management works with other bodies, as well as within itself, to uphold standards of conditions, and check in on the groups it oversees. As it serves as the connection between the Board and its workers, Institutions and Management also influences the general image of NASA to its workers.

Diplomatic Counsel to the Russian Federation

Despite a rocky relationship at the beginnings of NASA's conception, Russia and the US have come to relatively stable terms regarding joint manned spaceflight and support in future missions. The Diplomatic Counsel serves to keep the peace between the two nations, as a liaison, as well as the informant of the Russian Federal Space Agency. As the connector between the two nations, the Diplomatic Counsel serves to benefit both Russia and the US, hoping to strengthen, and not weaken, their bond.

Diplomatic Counsel to the European Union

The European Union and the US currently have a stable relationship. That being said, the Diplomatic Counsel to the EU serves as the base of all communications between the EU and the US regarding spaceflight and hopes to become more of a central figure to US spaceflight as the months continue. The Counsel also serves as the informant of EU proceedings regarding European spaceflight and its correlation to the US.

Astronaut Sally Ride

Astronaut Sally Ride became the first American woman in space in 1983, aboard the Space Shuttle Challenger, STS-7. with a total of 343 hours in space. Ride is a flight specialist, serving twice as the ground-based capsule communicator (CapCom). Outside of spaceflight, Ride earned a PhD in physics while researching the interaction between X-rays and interstellar medium. An accomplished scientist and astronaut, Ride also brings a civilian perspective to the NASA board, currently spearheading two public outreach programs: the ISS EarthKAM and GRAIL MoonKAM projects.

Rockwell International

Founded in 1919, Rockwell International is an American manufacturing conglomerate specializing in aircraft, space industry, and defense innovation. It became NASA's largest contractor in the 1980s, when the Space Shuttle, the Space Transport System, began conception and later, production. Rockwell was responsible for the development of the Space Shuttle, and its sister company, Rockwell Space Systems, responsible for the thermal outer shell. However, as NASA looks toward other projects, Rockwell might fall behind in design.

Lockheed Martin

Lockheed Martin was formed as a merger between Lockheed and Martin companies in 1995. Since then, it has served as a focal point of worldwide interest in the development of aerospace technology. Throughout its conception, Lockheed Martin has fought with rival companies Northrop-Grumman, Boeing, and Rockwell to secure NASA contracts. The merged company was able to secure a contract for the Space Shuttle External Tank but has not made much progress since. Considering new projects are in the works, Lockheed Martin may be in the position for a new contract, if it can work in tandem with other companies to do so.

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